United States Steel

USS – MIDWEST

CHROME WASTE LINE AND DEMINERALIZED WATER PIPING PROJECT

CIVIL SPECIFICATION #M100 – Demineralized Water Reroute

CIVIL SPECIFICATION #M200 – 3&6-in. Chrome Waste Pipe Replacement

DATE: 8/23/17 – For Bids

Rev. 0

Orbital Engineering Inc.

This cover packages the two individual Work Specifications as indicated.

Bidders shall provide the following for each specification:

- Pricing for work indicated.
- Bills of materials for the work
- Schedule for each of the work tasks
- Construction Plan description of work and sequence of the work
- Other pertinent information to the installation plan bid by the contractor.

a) Project Contacts:

B. CONTRACTOR REQUIREMENTS

1. The Contractor shall be responsible for the following:

a) Before start of field construction actives, attend a construction meeting at work site with the Owner's Representative.

b) Submit complete construction documents as outlined in the contract documents.

c) Any major errors found during field construction which would prevent proper assembly and fitting of parts and result from deviations from design drawings, correct rework, or design and drawing errors, shall be reported to the Owner. Contractor shall obtain the Owner's written approval for any deviations or corrective work.

Please see each of the two work descriptions included under this cover.

[End of this section]

United States Steel

USS – MIDWEST

DEMINERALIZED WATER 3-INCH LINE REPLACEMENT PROJECT

PIPING SPECIFICATION #M100

DATE: 8/23/17

Rev. 0

Orbital Engineering Inc.

Table of Contents

I. INSTALLATION/CONSTRUCTION

A. GENERAL

1. Base Scope

a) Purpose of this project is to remove the 3" Demineralized water line from the acid trench. See the attached drawings for an overview. The new insulated 3" line will be routed inside the CA Line building overhead using Stainless Steel Schedule 20 pipe; welded joint construction. The use of expansion joints will not be permitted. The installation contractor may choose to modify the steps with the approval of and USS personnel. The 3-inch pipe shall be field routed in the building and supported with typical supports as shown in attached document and as on the attached drawings.

b) The Following Steps include the scope of work:

1. The 3" line is being moved to open up the trench for the later installation of the new 6-inch chrome waste line.
2. The 3" pipe will be field routed inside the CA Line building at an elevated level approximately 15-ft off the mill floor with routing between crane columns and building columns to protect the pipe from overhead loads and movement.
3. TP 01 will be installed outside of the existing trench below the existing valve. There is a Tee with a valve each side of it below the trench cover that can remain so as to act as a low-point drain for the system.
4. At TP-01, a Tee can be added for the short lateral pipe for the new rerouted system.
5. Standard pipe support designs are provided using pipe protection saddles and pipe rolls.
6. TP 02 is located in the basement of the Tin Line area.
7. All high points in the line should have a vent and all low points should have a drain installed.
8. Piping shall be insulated, lagged, and banded with same system as that on existing piping at TP 01.

2. Specifications, Standards and Codes The design shall be in compliance with federal, state, and local building codes, the owner's applicable specifications, and applicable industry standards from organizations such as AISC, ANSI, ASME, etc.

B. CONSTRUCTION REQUIREMENTS

1. The Contractor shall be responsible for the following:

a) Before start of field construction actives, attend a construction meeting at work site with the Owner's Representative.

b) Submit complete construction documents as outlined in the contract documents.

c) The Contractor shall be responsible for the following:

d) Any major errors caused during field construction which would prevent proper assembly and fitting of parts and result from deviations from design drawings, correct rework, or design and drawing errors, shall be reported to the Owner. Contractor shall obtain the Owner's written approval for any deviations or corrective work. Contractor shall notify Owner's Engineer before work proceeds.

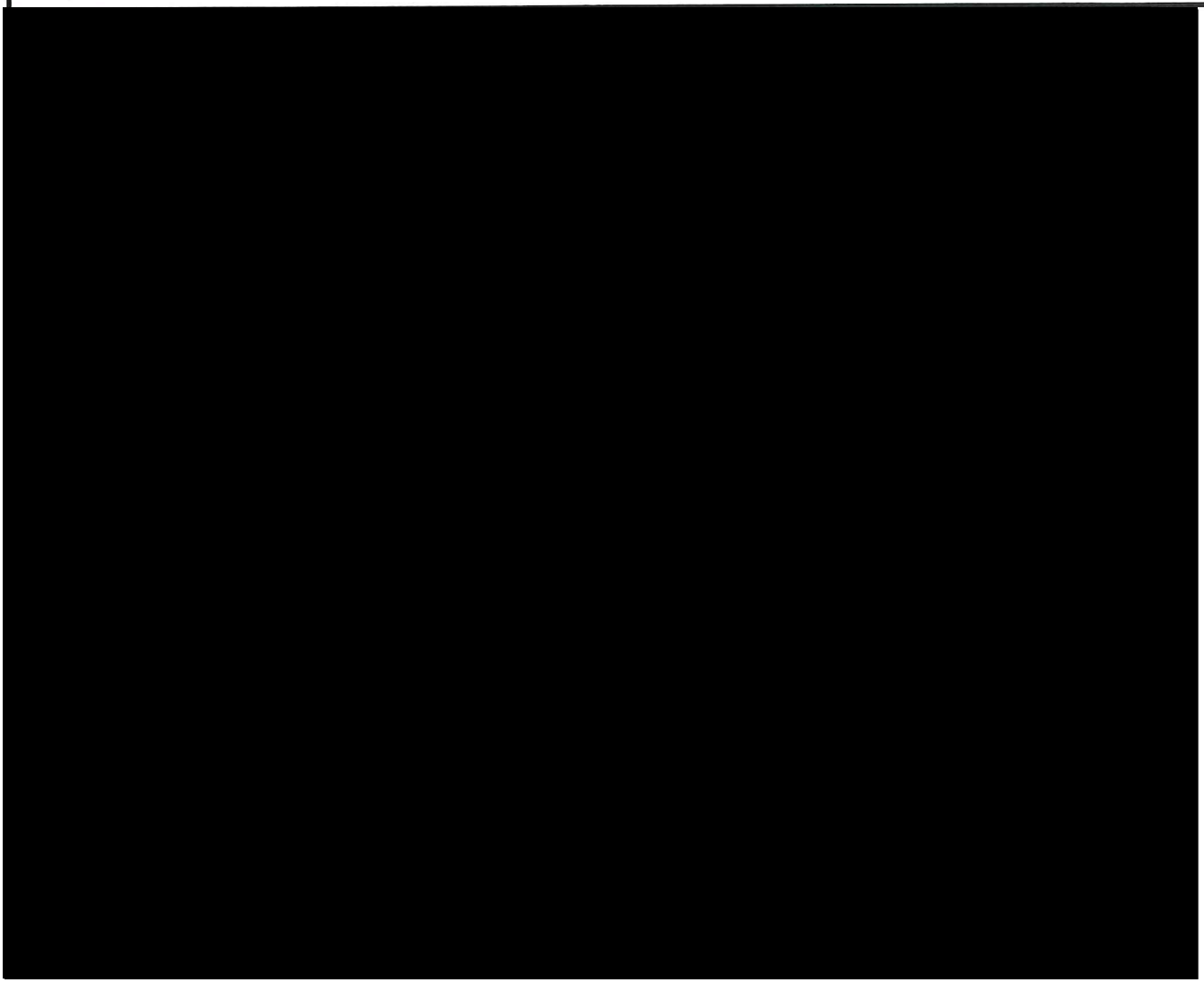
C. INSPECTION & TESTING

The following records shall be made available for examination:

- Welding procedure specifications and procedure qualification records to be used, including detailed welding methods and chemical composition of purge gas, if used.
- Results of Welder Performance Qualifications test.
- Radiographic films from any required radiographic tests.
- Certificates of results of any required magnetic particle, liquid penetrant, or other types of examination.
- Mill test reports for items specifically noted on purchase order or specified in the work specification. Mill test reports shall state specification met by material, heat or melt number, heat treatment (if any), chemical analysis, and results of mechanical tests.
- Any other records (post-weld heat treatment, pressure tests and the like, when such operations are performed.)

Drawings:

1) As Attached.



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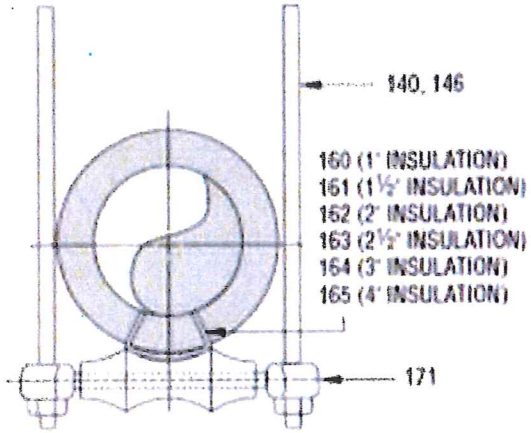
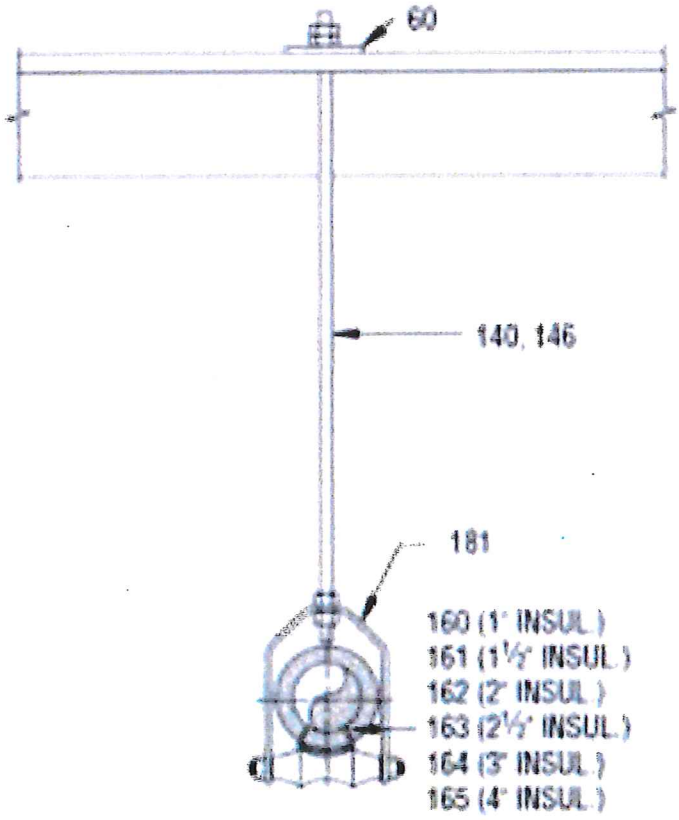
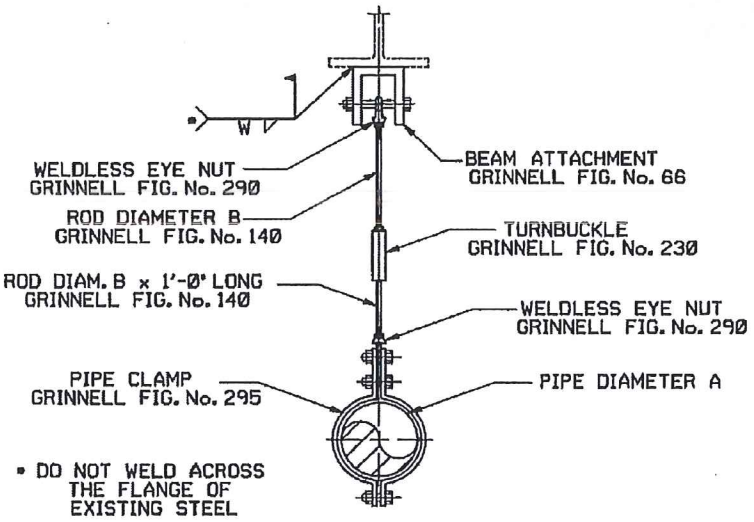
Anvil Pipe Saddles and Anvil Pipe Roll Fig. Number 171, 177, or 181





United States Steel Corporation Standard Guideline	Standard Guideline PP-306 Issue Date:	
SUPPORTS FOR PIPING SYSTEMS	Revision No.	Revision Date:

12.0 **TYPICAL SUPPORT DETAILS** (Cont)

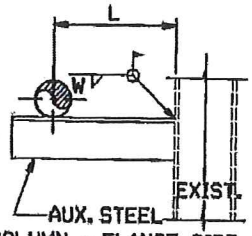


A	B	W	Maximum Load (Lbs)	
			T ≤650 F	T = 750 F
2-1/2" - 3"	1/2"	3/16"	1130	1010
4" - 5"	5/8"	3/16"	1810	1610
6"	3/4"	1/4"	2710	2420
8" - 16"	1"	1/4"	4960	4420
18 - 24"	1-1/4"	5/16"	8000	7140

Figure 12-6
Double Bolt Clamp Rod Hanger For Uninsulated Pipe

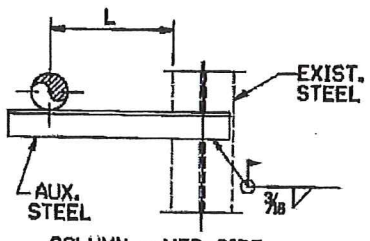
United States Steel Corporation Standard Guideline	Standard Guideline PP-306 Page 6 of 32	
	Issue Date:	
Piping Codes and Standards	Revision No.	Revision Date:

12.0 **TYPICAL SUPPORT DETAILS** (Cont)



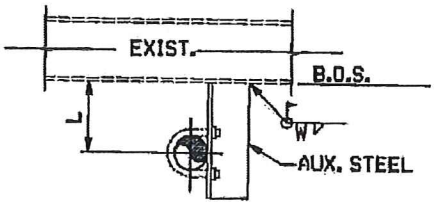
COLUMN - FLANGE SIDE

NOTE: WITH A U-BOLT, THIS SUPPORT MAY ALSO BE USED FOR VERTICAL PIPE SUPPORT.



COLUMN - WEB SIDE

NOTE: WITH A U-BOLT, THIS SUPPORT MAY ALSO BE USED FOR VERTICAL PIPE SUPPORT.



BEAM - FLANGE SIDE

L	LINE SIZE			
	Up to 2"	3"	4"	6"
1'-0"	ANGLE 3 x 3 x 1/4"			
2'-0"			ANGLE 4 x 4 x 1/4"	
3'-0"				
W	3/16"			

Figure 12-14
Welded Cantilever Support

United States Steel

USS – MIDWEST

CHROME WASTE LINE REPLACEMENT PROJECT

PIPING SPECIFICATION #M200

DATE: 8/23/17

Rev. 0

Orbital Engineering Inc.

Table of Contents

I. INSTALLATION/CONSTRUCTION

A. GENERAL

1. Scope

a) Purpose of this project is to replace the 6" Chrome Waste piping from the Chrome building to the Acid tanks with a new 6" Stainless Steel Schedule 20 pipe. New supports will be required. There will be a minor change in routing toward the end of the route. The existing pipe will need to be demolished from the trench once the new pipe is in service. The installation contractor may choose to modify the steps with the approval of and USS personnel.

b) Also, the 3-inch line from the Chrome Plater Line Sump (Plater Sump #1) to the Tin Line Chrome Waste Sump shall be replaced. The first part of this run shall begin at the tie-point at the downstream flange of the manifold isolation valve and will run around the waste chrome storage tank in the basement, then into the trench to the Tin Line Chrome Waste Sump. In the area near the Tin Chrome Waste sump, the line drops slightly, runs south, then the new piping scope ends at the existing backflow preventer which is left in place.

c) The Following Steps include the scope of work:

- The new stainless steel 6-inch, Schedule 20 pipe will be field routed inside the acid trench. See attached drawings.
- TP 05 is located inside the building. See Photos for location near the Tin Line Chrome Sump.
- Standard design for supports inside trench are located on drawings
- TP 05 and TP 06 will be tied-in at a strategic date and existing 6" Chrome Waste piping will be demolished after the new piping is brought into service.

2. Specifications, Standards and Codes

The design shall be in compliance with federal, state, and local building codes, the owner's applicable specifications, and applicable industry standards from organizations such as AISC, ANSI, ASME, etc.

B. ERECTION REQUIREMENTS

1. Scope – The Contractor shall be responsible for the following:

a) Before start of field construction actives, attend a lineup meeting at work site with the Owner's Representative.

b) Submit complete construction documents as outlined in the contract documents.

2. General – The Contractor shall be responsible for the following:

a) Contractor shall furnish all required supports, as indicated on the drawings for the field erection.

b) Verify anchor bolts and other required anchorage items for proper size and accurate location before erecting pipe supports.

c) Perform burning, when required, only with approval by the Owner's Engineer.

d) Any major errors found in design during field construction which would prevent proper assembly and fitting of parts and result from deviations from design drawings, correct rework, or design and drawing errors, shall be reported to the Owner. Contractor shall obtain the Owner's written approval for any deviations or corrective work.

C. INSPECTION & TESTING

1. Inspectors

a) Owner's Inspector(s)

When Owner elects to provide its own Inspector(s), Suppler shall:

(1) Provide sufficient, safe, and proper facilities at all times for inspection of work, furnish full information concerning all material entering into work, and grant Owner's Inspector(s) free access at all reasonable times.

(2) Notify Engineer at start of fabrication, and reasonably in advance for prearranged testing or inspection.

b) Installer's Inspectors

Installer's Field Inspectors shall verify that:

(1) All parts, before welding, have been properly fitted and cleaned for welding such that alignment tolerances have been maintained.

(2) Welding, nondestructive testing, fastener installation, cleaning and painting are being performed in accordance with approved procedures.

(3) All material arrived undamaged at receiving area. If damage has occurred, notify Owner's Engineer.

(4) Each piece has been properly assembled to detail dimensions within permissible tolerances.

2. Reports and Records

Maintain the following and submit only at the Owner's request:

a) Welding procedures before using them in fabrication and erection.

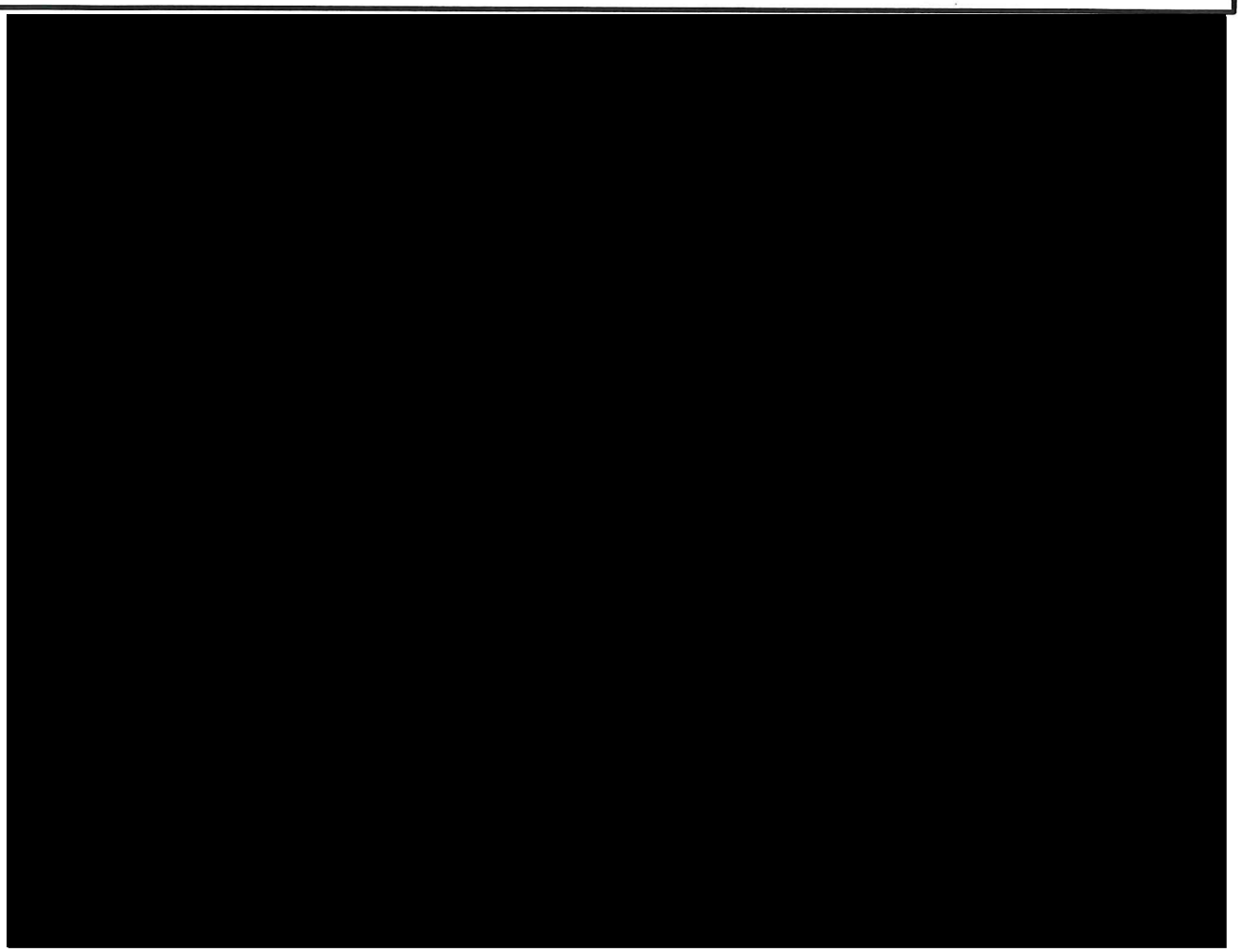
b) Qualification reports of all welders and welding operators before using welders in production work on components.

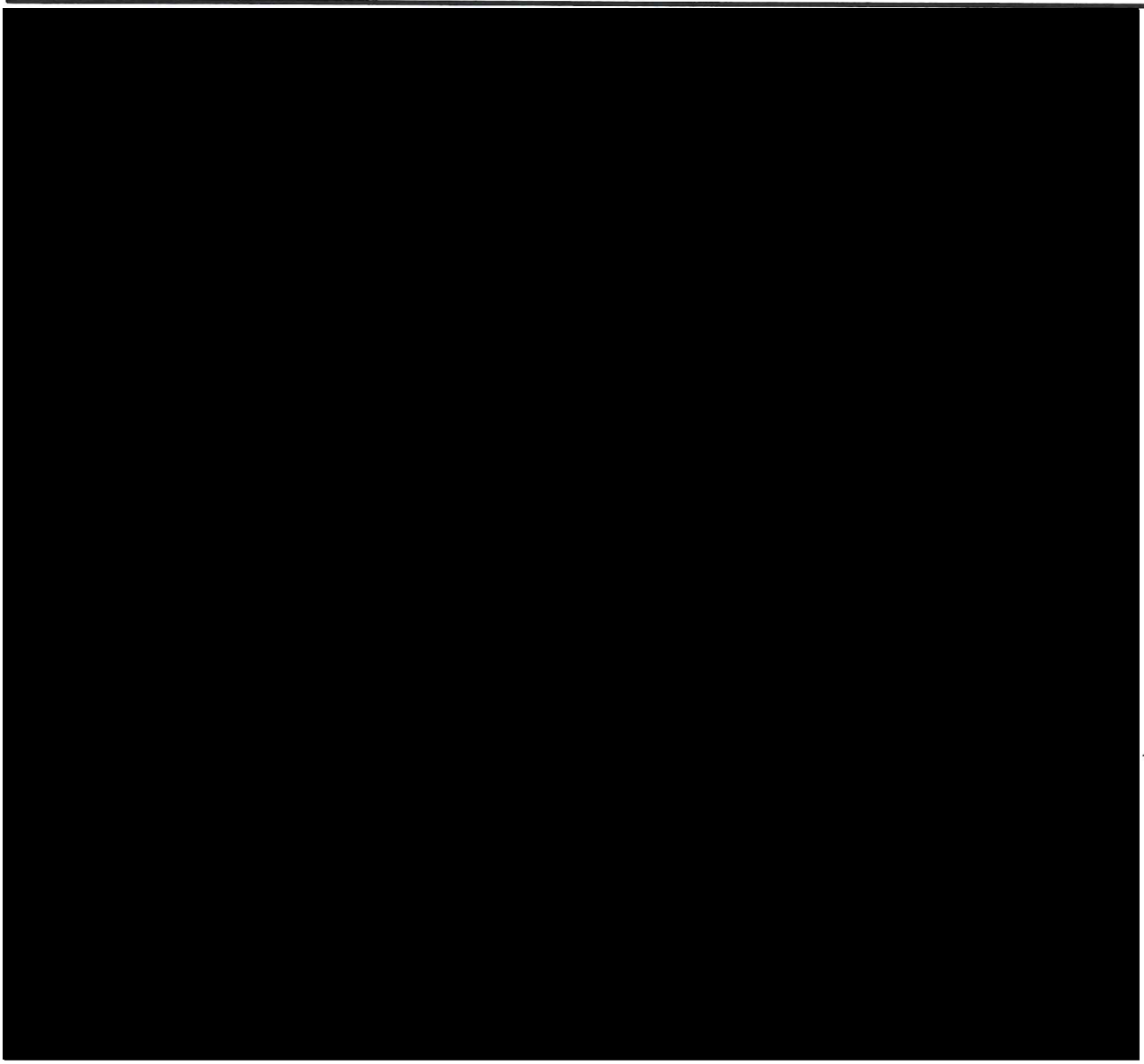
c) Records of all heat treatments performed on component or component parts.

d) Records of nondestructive test examinations performed on component or component parts.

Drawings:

1) As Attached.





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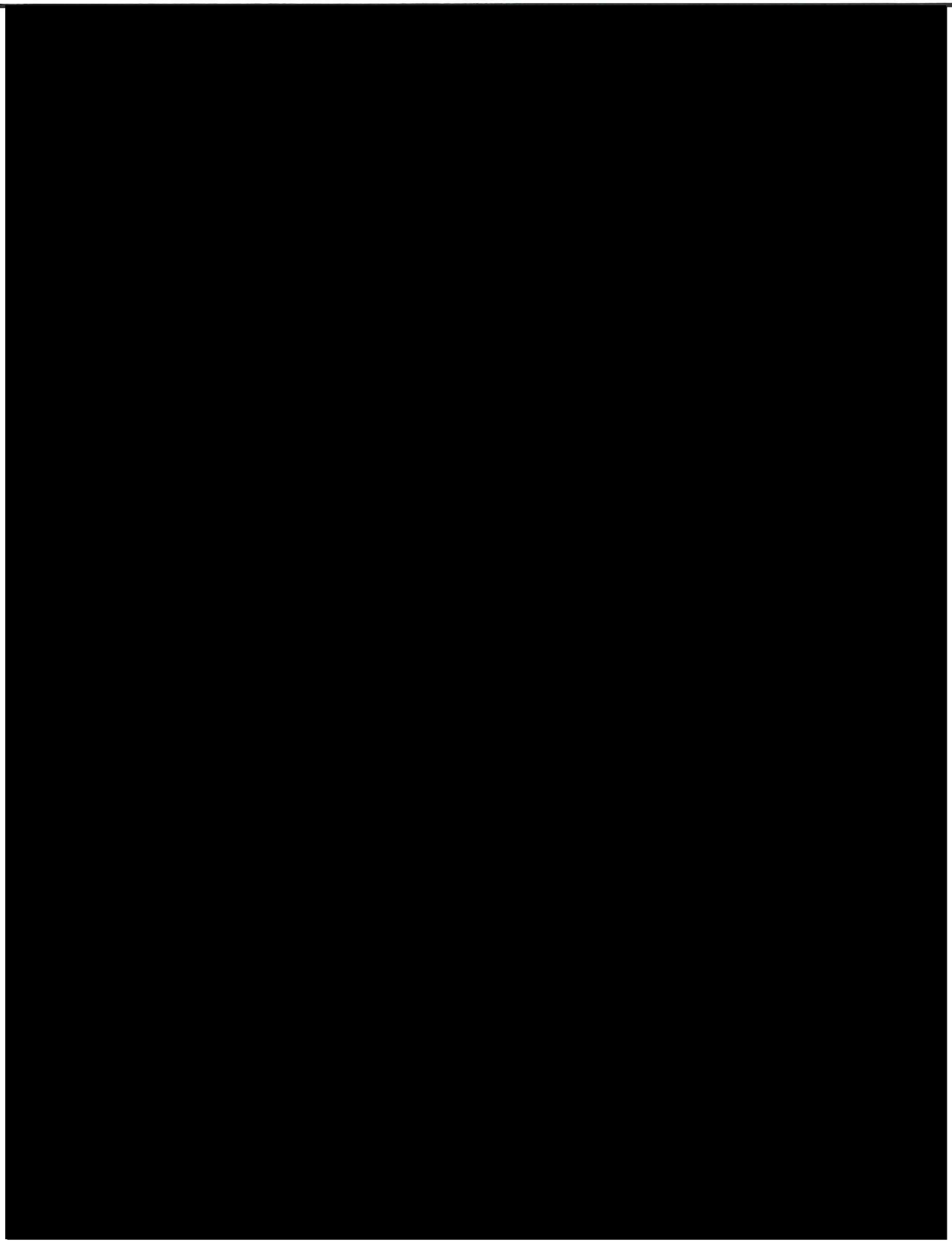
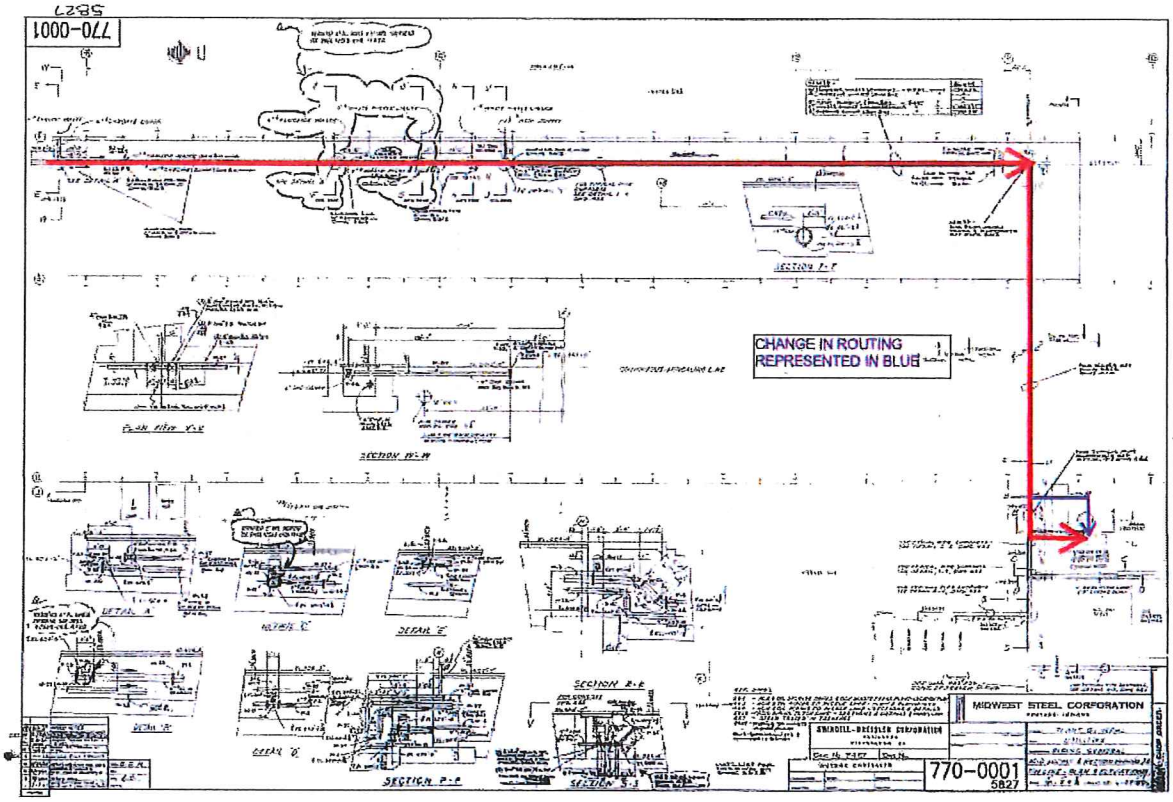
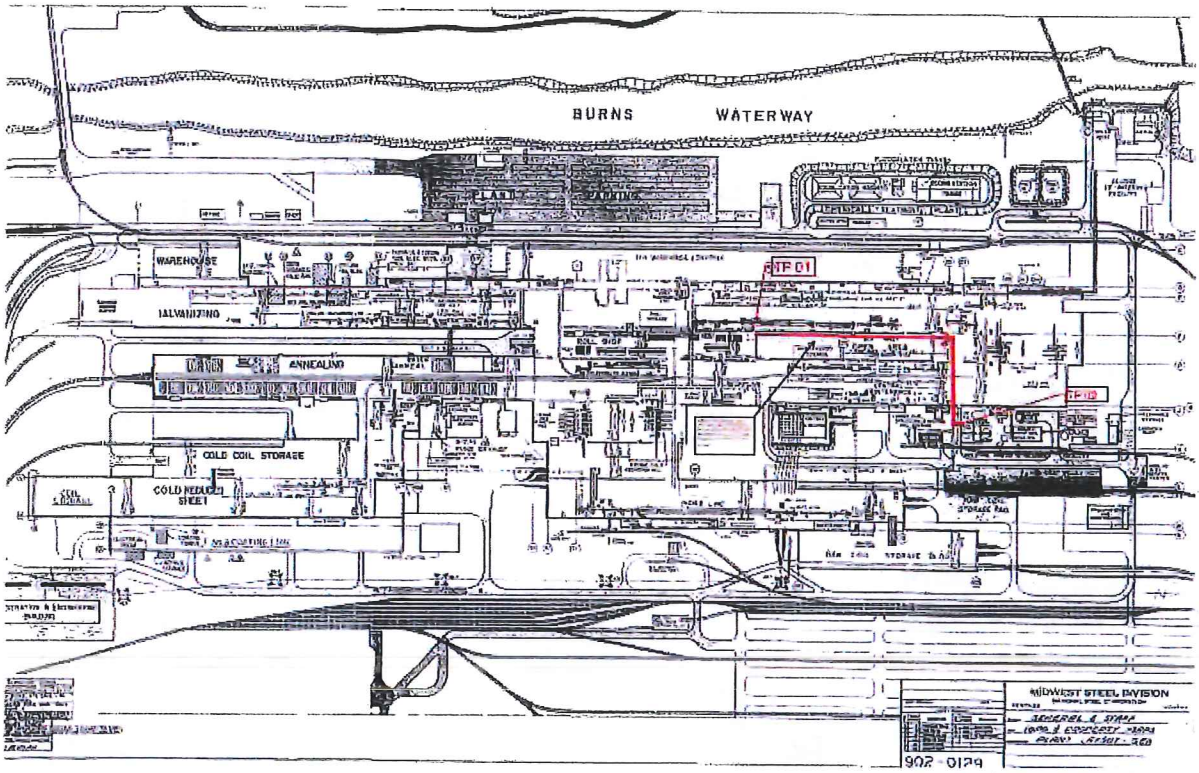



CHANGE IN ROUTING
REPRESENTED IN BLUE
MIDWEST STEEL CORPORATION
770-0001
5827


BURNS
WATERWAY
WAREHOUSE
GALVANIZING
ANNEALING
COLD COIL STORAGE
MIDWEST STEEL DIVISION